Literature on MPT Modeling

The following list provides an (incomplete) overview of further, advanced literature about MPT modeling. These papers might serve as a reference and knowledge base after the workshop when working with MPT models in practice.

Basics and Reviews

Batchelder, W. H., & Riefer, D. M. (1990). Multinomial processing models of source monitoring. *Psychological Review*, *97*, 548–564. https://doi.org/10.1037/0033-295X.97.4.548

Erdfelder, E., Auer, T.-S., Hilbig, B. E., Assfalg, A., Moshagen, M., & Nadarevic, L. (2009). Multinomial processing tree models: A review of the literature. *Zeitschrift Für Psychologie / Journal of Psychology*, *217*, 108–124. https://doi.org/10.1027/0044-3409.217.3.108

Hu, X., & Batchelder, W. H. (1994). The statistical analysis of general processing tree models with the EM algorithm. *Psychometrika, 59*, 21–47. https://doi.org/10.1007/bf02294263

Hütter, M., & Klauer, K. C. (2016). Applying processing trees in social psychology. *European Review of Social Psychology*, *27*, 116–159. https://doi.org/10.1080/10463283.2016.1212966

Moshagen, M. (2010). multiTree: A computer program for the analysis of multinomial processing tree models. *Behavior Research Methods*, *42*, 42–54. https://doi.org/10.3758/BRM.42.1.42

Riefer, D. M., & Batchelder, W. H. (1988). Multinomial modeling and the measurement of cognitive-processes. *Psychological Review*, *95*, 318–339. https://doi.org/10.1037/0033-295X.95.3.318

Singmann, H., & Kellen, D. (2013). MPTinR: Analysis of multinomial processing tree models in R. *Behavior Research Methods*, *45*, 560–575. https://doi.org/10.3758/s13428-012-0259-0

Order Constraints and Model Selection

Heck, D. W., Moshagen, M., & Erdfelder, E. (2014). Model selection by minimum description length: Lower-bound sample sizes for the Fisher information approximation. *Journal of Mathematical Psychology, 60*, 29–34. https://doi.org/10.1016/j.jmp.2014.06.002

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Klauer, K. C., & Kellen, D. (2015). The flexibility of models of recognition memory: The case of confidence ratings. *Journal of Mathematical Psychology, 67*, 8–25. https://doi.org/10.1016/j.jmp.2015.05.002

Klauer, K. C., Singmann, H., & Kellen, D. (2015). Parametric order constraints in multinomial processing tree models: An extension of Knapp and Batchelder (2004). *Journal of Mathematical Psychology, 64*, 1–7. https://doi.org/10.1016/j.jmp.2014.11.001

Knapp, B. R., & Batchelder, W. H. (2004). Representing parametric order constraints in multi-trial applications of multinomial processing tree models. *Journal of Mathematical Psychology, 48*, 215–229. https://doi.org/10.1016/j.jmp.2004.03.002

Wu, H., Myung, J. I., & Batchelder, W. H. (2010). Minimum description length model selection of multinomial processing tree models. *Psychonomic Bulletin & Review, 17*, 275–286. https://doi.org/10.3758/PBR.17.3.275

Substantive Application (IAT)

Conrey, F. R., Sherman, J. W., Gawronski, B., Hugenberg, K., & Groom, C. J. (2005). Separating multiple processes in implicit social cognition: The quad model of implicit task performance. *Journal of Personality and Social Psychology, 89*, 469–487. https://doi.org/10.1037/0022-3514.89.4.469

Meissner, F., & Rothermund, K. (2013). Estimating the contributions of associations and recoding in the Implicit Association Test: The ReAL model for the IAT. *Journal of Personality and Social Psychology, 104*, 45–69. https://doi.org/10.1037/a0030734

Meissner, F., & Rothermund, K. (2015). A thousand words are worth more than a picture? The effects of stimulus modality on the implicit association test. *Social Psychological and Personality Science, 6*, 740–748. https://doi.org/10.1177/1948550615580381

Hierarchical MPT Modeling

Heck, D. W., Arnold, N. R., & Arnold, D. (2018). TreeBUGS: An R package for hierarchical multinomial-processing-tree modeling. *Behavior Research Methods*, *50*, 264–284. https://doi.org/10.3758/s13428-017-0869-7

Klauer, K. C. (2006). Hierarchical multinomial processing tree models: A latent-class approach. *Psychometrika, 71*, 7–31. https://doi.org/10.1007/s11336-004-1188-3

Klauer, K. C. (2010). Hierarchical multinomial processing tree models: A latent-trait approach. *Psychometrika, 75*, 70–98. https://doi.org/10.1007/s11336-009-9141-0

Matzke, D., & Wagenmakers, E.-J. (2009). Psychological interpretation of the ex-Gaussian and shifted Wald parameters: A diffusion model analysis. *Psychonomic Bulletin & Review, 16*, 798–817. https://doi.org/10.3758/pbr.16.5.798

Smith, J. B., & Batchelder, W. H. (2010). Beta-MPT: Multinomial processing tree models for addressing individual differences. *Journal of Mathematical Psychology, 54*, 167–183. https://doi.org/10.1016/j.jmp.2009.06.007

Stahl, C., & Klauer, K. C. (2006). HMMTree: A computer program for latent-class hierarchical multinomial processing tree models. *Behavior Research Methods, 39*, 267–273. https://doi.org/10.3758/BF03193157

Response times and continuous variables

Heck, D. W., & Erdfelder, E. (2016). Extending multinomial processing tree models to measure the relative speed of cognitive processes. *Psychonomic Bulletin & Review*, *23*, 1440–1465. https://doi.org/10.3758/s13423-016-1025-6

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Heck, D. W., Erdfelder, E., & Kieslich, P. J. (in press). Generalized processing tree models: Jointly modeling discrete and continuous variables. *Psychometrika*. https://doi.org/10.1007/s11336-018-9622-0

Klauer, K. C., & Kellen, D. (2018). RT-MPTs: Process models for response-time distributions based on multinomial processing trees with applications to recognition memory. *Journal of Mathematical Psychology*, *82*, 111–130. https://doi.org/10.1016/j.jmp.2017.12.003

Schweickert, R., & Zheng, X. (2018). Tree inference: Selective influence in multinomial processing trees with supplementary measures such as response time. *Journal of Mathematical Psychology*, *86*, 10–29. https://doi.org/10.1016/j.jmp.2018.07.001